

# SEQUENCE LISTING

<110> Hemmati-Brivanlou, Ali  
Weinstein, Daniel C.

<120> TRANSLATION INITIATION FACTOR 4AIII, AND METHODS OF USE  
THEREOF

<130> 600-1-211 N

<140> UNASSIGNED

<141> 1999-05-25

<160> 12

<170> PatentIn Ver. 2.0

<210> 1

<211> 1245

<212> DNA

<213> Xenopus laevis

<400> 1

```
atggcggccg cagctgttgc aggagttgcc ggggttgacca cggcgcacgc gaagcggctt 60
ttacgggagg aggatatgac caccgtggag ttccagacca gcgaagaagt ggatgtaacg 120
ccaacgtttg atacgatggg gctgaggga gaccttctga gaggcatacta tgcttatgga 180
tttgagaaac catcggctat acaacagaag gcaatcaagc agatcatcaa aggaagggat 240
gtgatcgcac aatcacagtc tggtagagc aaaacagcaa ctttttgtgt ttctgtgcta 300
cagtgttttg atattcagat ccgtgaaacc caagccttga ttttagcacc caccaaagag 360
ttagcacggc aaattcagaa ggtgttgctt gctttggggg actacatgaa tgtgcagtgt 420
catgcgtgta ttggaggcac aaatgttgga gaggatatcc gaaaattgga ttatgggcag 480
cacgttggtg ctggaacacc agggcgtggt tttgatatga ttcgacgcag aagtttaaga 540
actcgggcca ttaaaatgtt agtgctggat gaagctgatg aaatgttgaa taagggtttc 600
aaggagcaaa tttatgatgt atacaggtat ctgcctccag caacacaagt ttgtttaatc 660
agtgtatccc tgccacatga aatcctggaa atgaccaata agtttatgac tgatcccatc 720
cgtatccttg tgaaacgtga tgagttgaca ctggaaggca tcaagcagtt ttttgtggca 780
gtggagagag aagagtggaa atttgatact ttgtgtgatt tatatgacac ttgtactatt 840
acacaagctg taatcttctg caacacaaaa agaaaggtag attggttgac tgaaaaaatg 900
agagaagcaa atttcacagt ttcgtcaatg catggtgata tgcccaaaa ggagagagag 960
tcaatcatga aagaattccg atctggtgca agccgagtcc tcatatcaac ggacgtctgg 1020
gcccagggat tggatgtgcc acaggtctcc ttgattatca actatgatct tcccaataac 1080
cgagaattgt acattcacag aattggccga tcaggaagat atggaagaaa ggggtgttgcc 1140
attaactttg tcaagaatga tgacatccgt attttaagag atattgagca gtactattcg 1200
accagattg atgaaatgcc aatgaacggt gctgatctta tttga 1245
```

<210> 2

<211> 415

<212> PRT

Arg Ile Leu Val Lys Arg Asp Glu Leu Thr Leu Glu Gly Ile Lys Gln  
 249 ILE Pro Ala Ala 250 255  
 Phe Phe Val Ala Val Glu Arg Glu Glu Trp Lys Phe Asp Thr Leu Cys  
 260 265 270  
 Asp Leu Tyr Asp Thr Leu Thr Ile Thr Gln Ala Val Ile Phe Cys Asn  
 275 280 285  
 Thr Lys Arg Lys Val Asp Trp Leu Thr Glu Lys Met Arg Glu Ala Asn  
 290 295 300  
 Phe Thr Val Ser Ser Met His Gly Asp Met Pro Gln Lys Glu Arg Glu  
 305 310 315 320  
 Ser Ile Met Lys Glu Phe Arg Ser Gly Ala Ser Arg Val Leu Ile Ser  
 325 330 335  
 Thr Asp Val Trp Ala Arg Gly Leu Asp Val Pro Gln Val Ser Leu Ile  
 340 345 350  
 Ile Asn Tyr Asp Leu Pro Asn Asn Arg Glu Leu Tyr Ile His Arg Ile  
 355 360 365  
 Gly Arg Ser Gly Arg Tyr Gly Arg Lys Gly Val Ala Ile Asn Phe Val  
 370 375 380  
 Lys Asn Asp Asp Ile Arg Ile Leu Arg Asp Ile Glu Gln Tyr Tyr Ser  
 385 390 395 400  
 Thr Gln Ile Asp Glu Met Pro Met Asn Val Ala Asp Leu Ile Glx  
 405 410 415

<210> 3

<211> 532.

<212> DNA

<213> Homo sapiens

<400> 3

aagcagatca tcaaaggag agatgtcatc gcacagtctc agtccggcac aggaaaaaca 60  
 gccaccttca gtatctcagt cctccagtgt ttggatattc aggttcgtga aactcaagct 120  
 ttgatcttgg ctcccacaag agagttggct gtgcagatcc agaaggggct gcttgctctc 180  
 ggtgactaca tgaatgtcca gtgccatgcc tgcattggag gcaccaatgt tggcgaggac 240  
 atcaggaagc tggattacgg acagcatggt gttgcgggca ctccagggcg tgtttttgat 300  
 atgattcgtc gcagaagcct aaggacacgt gctatcaaaa tgttggtttt ggatgaagct 360  
 gatgaaatgt tgaataaagg tttcaaagag cagatttacg atgtatacag gtacctgcct 420  
 ccagccacac aggtggttct catcagtgcc acgctgccac acgagattct ggagatgacc 480

<213> Xenopus laevis

<400> 2

Met Ala Ala Ala Val Ala Gly Val Ala Gly Leu Thr Thr Ala His  
1 5 10 15

Ala Lys Arg Leu Leu Arg Glu Glu Asp Met Thr Thr Val Glu Phe Gln  
20 25 30

Thr Ser Glu Glu Val Asp Val Thr Pro Thr Phe Asp Thr Met Gly Leu  
35 40 45

Arg Glu Asp Leu Leu Arg Gly Ile Tyr Ala Tyr Gly Phe Glu Lys Pro  
50 55 60

Ser Ala Ile Gln Gln Lys Ala Ile Lys Gln Ile Ile Lys Gly Arg Asp  
65 70 73 75 80

Val Ile Ala Gln Ser Gln Ser Gly Thr Gly Lys Thr Ala Thr Phe Cys  
85 90 95

<sup>116</sup> Val Ser Val Leu Gln Cys Leu Asp Ile Gln <sup>Val</sup> Ile Arg Glu Thr Gln Ala  
100 105 110

Leu Ile Leu Ala Pro Thr <sup>Arg</sup> Lys Glu Leu Ala <sup>Val</sup> Arg Gln Ile Gln Lys Val  
115 120 125

Leu Leu Ala Leu Gly Asp Tyr Met Asn Val Gln Cys His Ala Cys Ile  
130 135 140

Gly Gly Thr Asn Val Gly Glu Asp Ile Arg Lys Leu Asp Tyr Gly Gln  
145 150 155 160

His Val Val Ala Gly Thr Pro Gly Arg Val Phe Asp Met Ile Arg Arg  
165 170 175

Arg Ser Leu Arg Thr Arg Ala Ile Lys Met Leu Val Leu Asp Glu Ala  
180 185 190

Asp Glu Met Leu Asn Lys Gly Phe Lys Glu Gln Ile Tyr Asp Val Tyr  
195 200 205

Arg Tyr Leu Pro Pro Ala Thr Gln Val <sup>Val</sup> Cys Leu Ile Ser Ala Thr Leu  
210 215 220

Pro His Glu Ile Leu Glu Met Thr Asn Lys Phe Met Thr Asp Pro Ile  
225 230 235 240

aacaagttca tgaccgaccc aatccgcacg ttggtgggaa ttctgcagc cc

532

<210> 4

<211> 177

<212> PRT

<213> Homo sapiens

<400> 4

Lys Gln Ile Ile Lys Gly Arg Asp Val Ile Ala Gln Ser Gln Ser Gly  
1 5 10 15

Thr Gly Lys Thr Ala Thr Phe Ser Ile Ser Val Leu Gln Cys Leu Asp  
20 25 30

Ile Gln Val Arg Glu Thr Gln Ala Leu Ile Leu Ala Pro Thr Arg Glu  
35 40 45

Leu Ala Val Gln Ile Gln Lys Gly Leu Leu Ala Leu Gly Asp Tyr Met  
50 55 60

Asn Val Gln Cys His Ala Cys Ile Gly Gly Thr Asn Val Gly Glu Asp  
65 70 75 80

Ile Arg Lys Leu Asp Tyr Gly Gln His Val Val Ala Gly Thr Pro Gly  
85 90 95

Arg Val Phe Asp Met Ile Arg Arg Arg Ser Leu Arg Thr Arg Ala Ile  
100 105 110

Lys Met Leu Val Leu Asp Glu Ala Asp Glu Met Leu Asn Lys Gly Phe  
115 120 125

Lys Glu Gln Ile Tyr Asp Val Tyr Arg Tyr Leu Pro Pro Ala Thr Gln  
130 135 140

Val Val Leu Ile Ser Ala Thr Leu Pro His Glu Ile Leu Glu Met Thr  
145 150 155 160

Asn Lys Phe Met Thr Asp Pro Ile Arg Ile Leu Val Gly Ile Pro Ala  
165 170 175

Ala

<210> 5

<211> 1536

<212> DNA

<213> Homo sapiens

<400> 5

```
cggcagcag gtcggcagcg gcacagcag gtcggcagcg gcgcgcgctg tgctcttccg 60
cggactctga atcatggcga ccacggccac gatggcgacc tcgggctcgg cgcgaaagcg 120
gctgctcaaa gaggaagaca tgactaaagt ggaattcgag accagcgagg aggtggatgt 180
gacccccacg ttcgacacca tgggcctgcg ggaggacctg ctgcggggca tctacgctta 240
cggttttgaa aaaccatcag caatccagca acgagcaatc aagcagatca tcaaagggag 300
agatgtcatc gcacagtctc agtccggcac aggaaaaaca gccaccttca gtatctcagt 360
cctccagtgt ttggatattc aggttcgtga aactcaagct ttgatcttgg ctcccacaag 420
agagttggct gtgcagatcc agaaggggct gcttgctctc ggtgactaca tgaatgtcca 480
gtgccatgcc tgcattggag gcaccaatgt tggcgaggac atcaggaagc tggattacgg 540
acagcatgtt gtcgcgggca ctccaggcg tggttttgat atgattcgtc gcagaagcct 600
aaggacacgt gctatcaaaa tgttggtttt ggatgaagct gatgaaatgt tgaataaagg 660
tttcaaagag cagatttacg atgtatacag gtacctgcct tcagccacac aggtgggttct 720
catcagtgcc acgctgccac acgagattct ggagatgacc aacaagttca tgaccgaccc 780
aatccgcac tttggtgaaac gtgatgaatt gactctggaa ggcacaaagc aatttttcgt 840
ggcagtgagg aggggaagagt ggaaatttga cactctgtgt gacctctacg acacactgac 900
catcactcag gcggtcatct tctgcaacac caaaagaaag gtggactggc tgacggagaa 960
aatgagggaa gccaaacttca ctgtatcctc aatgcatgga gacatgcccc agaaagagcg 1020
ggagtccatc atgaaggagt tccggtcggg cgccagccga gtgcttattt ctacagatgt 1080
ctgggccagg gggttggatg tccctcaggt gtccctcatc attaactatg atctccctaa 1140
taacagagaa ttgtacatac acagaatttg gagatcaggt caatacggcc ggaaggggtgt 1200
ggccattaac tttgtaaaga atgacgacat ccgcatcctc agagatatcg agcagtacta 1260
ttccactcag attgatgaga tgccgatgaa cgttgctgat cttatctgaa gcagcagatc 1320
agtgggatga gggagactgt tcacctgctg tgtactcctg tttggaagta tttagatcca 1380
gattctactt aatgggggtt atatggactt tcttctcata aatggcctgc cgtctccctt 1440
cctttgaaga ggatatggg attctgctct cttttcttat ttacatgtaa ataatacatt 1500
gttctaagtc tttttcatta aaaatttaaa acttta 1536
```

<210> 6

<211> 411

<212> PRT

<213> Homo sapiens

<400> 6

```
Met Ala Thr Thr Ala Thr Met Ala Thr Ser Gly Ser Ala Arg Lys Arg
  1              5              10              15
```

```
Leu Leu Lys Glu Glu Asp Met Thr Lys Val Glu Phe Glu Thr Ser Glu
      20              25              30
```

```
Glu Val Asp Val Thr Pro Thr Phe Asp Thr Met Gly Leu Arg Glu Asp
      35              40              45
```

```
Leu Leu Arg Gly Ile Tyr Ala Tyr Gly Phe Glu Lys Pro Ser Ala Ile
      50              55              60
```

Gln	Gln	Arg	Ala	Ile	Lys	Gln	Ile	Ile	Lys	Gly	Arg	Asp	Val	Ile	Ala	
65					70					75					80	
Gln	Ser	Gln	Ser	Gly	Thr	Gly	Lys	Thr	Ala	Thr	Phe	Ser	Ile	Ser	Val	
				85					90					95		
Leu	Gln	Cys	Leu	Asp	Ile	Gln	Val	Arg	Glu	Thr	Gln	Ala	Leu	Ile	Leu	
			100					105					110			
Ala	Pro	Thr	Arg	Glu	Leu	Ala	Val	Gln	Ile	Gln	Lys	Gly	Leu	Leu	Ala	
			115					120				125				
Leu	Gly	Asp	Tyr	Met	Asn	Val	Gln	Cys	His	Ala	Cys	Ile	Gly	Gly	Thr	
	130					135					140					
Asn	Val	Gly	Glu	Asp	Ile	Arg	Lys	Leu	Asp	Tyr	Gly	Gln	His	Val	Val	
145					150					155					160	
Ala	Gly	Thr	Pro	Gly	Arg	Val	Phe	Asp	Met	Ile	Arg	Arg	Arg	Ser	Leu	
				165					170					175		
Arg	Thr	Arg	Ala	Ile	Lys	Met	Leu	Val	Leu	Asp	Glu	Ala	Asp	Glu	Met	
			180						185					190		
Leu	Asn	Lys	Gly	Phe	Lys	Glu	Gln	Ile	Tyr	Asp	Val	Tyr	Arg	Tyr	Leu	
		195					200					205				
Pro	Ser	Ala	Thr	Gln	Val	Val	Leu	Ile	Ser	Ala	Thr	Leu	Pro	His	Glu	
		210					215				220					
Ile	Leu	Glu	Met	Thr	Asn	Lys	Phe	Met	Thr	Asp	Pro	Ile	Arg	Ile	Leu	
225					230					235					240	
Val	Lys	Arg	Asp	Glu	Leu	Thr	Leu	Glu	Gly	Ile	Lys	Gln	Phe	Phe	Val	
				245					250					255		
Ala	Val	Glu	Arg	Glu	Glu	Trp	Lys	Phe	Asp	Thr	Leu	Cys	Asp	Leu	Tyr	
			260					265					270			
Asp	Thr	Leu	Thr	Ile	Thr	Gln	Ala	Val	Ile	Phe	Cys	Asn	Thr	Lys	Arg	
		275					280					285				
Lys	Val	Asp	Trp	Leu	Thr	Glu	Lys	Met	Arg	Glu	Ala	Asn	Phe	Thr	Val	
		290					295				300					
Ser	Ser	Met	His	Gly	Asp	Met	Pro	Gln	Lys	Glu	Arg	Glu	Ser	Ile	Met	
305					310					315					320	

Lys Glu Phe Arg Ser Gly Ala Ser Arg Val Leu Ile Ser Thr Asp Val  
 325 330 335  
 Trp Ala Arg Gly Leu Asp Val Pro Gln Val Ser Leu Ile Ile Asn Tyr  
 340 345 350  
 Asp Leu Pro Asn Asn Arg Glu Leu Tyr Ile His Arg Ile Gly Arg Ser  
 355 360 365  
 Gly Gln Tyr Gly Arg Lys Gly Val Ala Ile Asn Phe Val Lys Asn Asp  
 370 375 380  
 Asp Ile Arg Ile Leu Arg Asp Ile Glu Gln Tyr Tyr Ser Thr Gln Ile  
 385 390 395 400  
 Asp Glu Met Pro Met Asn Val Ala Asp Leu Ile  
 405 410

<210> 7  
 <211> 1682  
 <212> DNA  
 <213> Homo sapiens

<400> 7  
 cagcggcaca gcgaggtcgg cagcggcaca gcgaggtcgg cagcggcaca gcgaggtcgg 60  
 cagcggcaca gcgaggtcgg cagcggcaca gcgaggtcgg cagcggcaca gcgaggtcgg 120  
 cagcggcagc gaggtcggca gcggcacagc gaggtcggca gcggcagcga ggtcggcagc 180  
 ggcgcgcgct gtgctcttcc gcggactctg aatcatggcg accacggcca cgatggcgac 240  
 ctcgggctcg gcgcgaaagc ggctgctcaa agaggaagac atgactaaag tggaattcga 300  
 gaccagcgag gaggtggatg tgacccccac gttcgacacc atgggcctgc gggaggacct 360  
 gctgcggggc atctacgctt acggttttga aaaaccatca gcaatccagc aacgagcaat 420  
 caagcagatc atcaaaggga gagatgtcat cgcacagtct cagtccggca caggaaaaaac 480  
 agccaccttc agtatctcag tcctccagtg tttggatatt caggttcgtg aaactcaagc 540  
 tttgatcttg gctcccacaa gagagttggc tgtgcagatc cagaaggggc tgcttgctct 600  
 cgggtgactac atgaatgtcc agtgccatgc ctgcattgga ggcaccaatg ttggcgagga 660  
 catcaggaag ctggattacg gacagcatgt tgtcgcgggc actccagggc gtgtttttga 720  
 tatgattcgt cgcagaagcc taaggacag tgctatcaaa atgttggttt tggatgaagc 780  
 tgatgaaatg ttgaataaag gtttcaaaga gcagatttac gatgtataca ggtacctgcc 840  
 tccagccaca cagggtggtt tcatcagtgc cacgctgccca cagagattc tggagatgac 900  
 caacaagttc atgaccgacc caatccgcat cttggtgaaa cgtgatgaat tgactctgga 960  
 aggcacaaag caatttttcg tggcagtgga gaggggaagag tggaaatttg acactctgtg 1020  
 tgacctctac gacacactga ccatcactca ggcggtcatc ttctgcaaca caaaagaaa 1080  
 ggtggactgg ctgacggaga aaatgaggga agccaacttc actgtatcct caatgcatgg 1140  
 agacatgcc cagaaagagc gggagtccat catgaaggag ttccggtcgg gcgccagccg 1200  
 agtgcttatt totacagatg tctgggccag ggggttgat gtccctcagg tgcctcctcat 1260  
 cattaactat gatctcccta ataacagaga attgtacata cacagaattg ggagatcagg 1320  
 tcgatacggc cggaagggtg tggccattaa ctttgtaaag aatgacgaca tccgcatcct 1380

cagagatattc gagcagtact attccactca gattgatgag atgccgatga acgttgctga 1440  
tcttatctga agcagcagat cagtgggatg agggagactg ttcaectgct gtgtactcct 1500  
gtttggaagt atttagatcc agattctact taatggggtt tatatggact ttctttctcat 1560  
aaatggcctg ccgtctccct tcctttgaag aggatatggg gattctgctc tcttttctta 1620  
tttacatgta aataatacat tgttctaagt ctttttcatt aaaaatttaa aacttttccc 1680  
at 1682

<210> 8

<211> 411

<212> PRT

<213> Homo sapiens

<400> 8

Met Ala Thr Thr Ala Thr Met Ala Thr Ser Gly Ser Ala Arg Lys Arg  
1 5 10 15

Leu Leu Lys Glu Glu Asp Met Thr Lys Val Glu Phe Glu Thr Ser Glu  
20 25 30

Glu Val Asp Val Thr Pro Thr Phe Asp Thr Met Gly Leu Arg Glu Asp  
35 40 45

Leu Leu Arg Gly Ile Tyr Ala Tyr Gly Phe Glu Lys Pro Ser Ala Ile  
50 55 60

Gln Gln Arg Ala Ile Lys Gln Ile Ile Lys Gly Arg Asp Val Ile Ala  
65 70 75 80

Gln Ser Gln Ser Gly Thr Gly Lys Thr Ala Thr Phe Ser Ile Ser Val  
85 90 95

Leu Gln Cys Leu Asp Ile Gln Val Arg Glu Thr Gln Ala Leu Ile Leu  
100 105 110

Ala Pro Thr Arg Glu Leu Ala Val Gln Ile Gln Lys Gly Leu Leu Ala  
115 120 125

Leu Gly Asp Tyr Met Asn Val Gln Cys His Ala Cys Ile Gly Gly Thr  
130 135 140

Asn Val Gly Glu Asp Ile Arg Lys Leu Asp Tyr Gly Gln His Val Val  
145 150 155 160

Ala Gly Thr Pro Gly Arg Val Phe Asp Met Ile Arg Arg Arg Ser Leu  
165 170 175

Arg Thr Arg Ala Ile Lys Met Leu Val Leu Asp Glu Ala Asp Glu Met  
180 185 190



Leu Asn Lys Gly Phe Lys Glu Gln Ile Tyr Asp Val Tyr Arg Tyr Leu  
 195 200 205

Pro Pro Ala Thr Gln Val Val Leu Ile Ser Ala Thr Leu Pro His Glu  
 210 215 220

Ile Leu Glu Met Thr Asn Lys Phe Met Thr Asp Pro Ile Arg Ile Leu  
 225 230 235 240

Val Lys Arg Asp Glu Leu Thr Leu Glu Gly Ile Lys Gln Phe Phe Val  
 245 250 255

Ala Val Glu Arg Glu Glu Trp Lys Phe Asp Thr Leu Cys Asp Leu Tyr  
 260 265 270

Asp Thr Leu Thr Ile Thr Gln Ala Val Ile Phe Cys Asn Thr Lys Arg  
 275 280 285

Lys Val Asp Trp Leu Thr Glu Lys Met Arg Glu Ala Asn Phe Thr Val  
 290 295 300

Ser Ser Met His Gly Asp Met Pro Gln Lys Glu Arg Glu Ser Ile Met  
 305 310 315 320

Lys Glu Phe Arg Ser Gly Ala Ser Arg Val Leu Ile Ser Thr Asp Val  
 325 330 335

Trp Ala Arg Gly Leu Asp Val Pro Gln Val Ser Leu Ile Ile Asn Tyr  
 340 345 350

Asp Leu Pro Asn Asn Arg Glu Leu Tyr Ile His Arg Ile Gly Arg Ser  
 355 360 365

Gly Arg Tyr Gly Arg Lys Gly Val Ala Ile Asn Phe Val Lys Asn Asp  
 370 375 380

Asp Ile Arg Ile Leu Arg Asp Ile Glu Gln Tyr Tyr Ser Thr Gln Ile  
 385 390 395 400

Asp Glu Met Pro Met Asn Val Ala Asp Leu Ile  
 405 410

<210> 9

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 9

gggtggtgcc attaactttg tc

22

<210> 10

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 10

cctgccacat gaaatcctgg

20

<210> 11

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 11

gagtcgcagt ctggatattg c

21

<210> 12

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Description of Artificial Sequence:primer

<400> 12

tggaatgtag ccagtctgcc

20